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THE CANADIAN PACIFIC RAILWAY.*

BY GENERAL HEWSON, C.E., TORONTO.

THE 'Thirteen Colonies' of North America possessed little or no original force of unity. Strung out in a thin line along the vast extent of coast between New Brunswick and Florida, if they had been given independence freely and separately, they would, in all likelihood, have failed to find any internal ground for confederation. The union which arose between them was a product of common danger. Their subsequent consolidation into a nationality followed from the impetus of that force after it had ceased to operate, on the declaration of peace. If the passions of the American revolution had been allowed to pass away previously, that consolidation would probably have been found impossible, because of the differences of habits and sympathies between the Puritans of New England and the Southern cavaliers. But a controlling element presented itself to give their union of a convenience already satisfied, permanence. From the day at which the Thirteen Colonies had expanded in thought and feeling to the dimensions of the common inheritance which extended in their rear, they felt the instinct of a common destiny, the principle of a national life, in a *sense of Empire*—in such a fraternity of ambition as that which found voice in the exclamation:

> 'No pent-up Utica confines our powers;
> But the whole boundless Continent is ours!'

The Provinces of this Dominion have not been moved towards each other by lasting forces of internal attraction. Having a seaboard nearer home, the farmers of Ontario are not bound by any original reciprocity of convenience to the fishers and shippers of New Brunswick, Prince Edward, Nova Scotia. The Maritime Provinces are drawn by their interests less powerfully towards the carrying trade of this poor Dominion than they are towards the Transatlantic and the coasting traffic of the great and rich Union across the border. Outside the area of country whose material interests follow for six months of the year the line of navigation and the line of railway discharging at Montreal upon ships of the sea, there does not exist to-day a fixed ground of reason to sustain, after the British sympathies of the people shall have cooled, the present promise of Canadian nationality.

"Commerce is King." Acts of Parliament creating embryo nations operate in new societies subject to his veto. They become sooner or later a dead-letter unless they shall have received from him previously the quickening of material life. Mr. Goldwin Smith spoke thoughtfully when he said that the forces of ultimate preponderance which act with political effect in this Dominion of *to-day*, favour annexation to the United States. Instead of hiding our heads, as the os-

* *Reports on the Canadian Pacific Railway.* By SANDFORD FLEMING, C.M.G., Engineer-in-Chief, Ottawa. 1879.

Notes on the Canadian Pacific Railway. By General M. BUTT HEWSON, formerly Originator and Promoter of the Memphis and Louisville Railroad; Chief Engineer (under Commission from the State of Mississippi) on the Memphis and Charleston Railroad; Chief Engineer of the Mississippi Central Railroad; Chief Engineer of the Arkansas Midland Railroad; Consulting Engineer of the Mississippi, Ouachita and Red River Railroad, &c., &c., &c.

trich hides his, from the pursuit of that unwelcome conclusion, we are told by the practical instinct of this population of architects of their own fortunes, to look the conclusion in the face with the manful determination that it shall be reversed! For that reversal the country relies on the Pacific Railway. The *Province*-creators look to the *Nation*-creators to carry out that great enterprise so as to illuminate with fixed life the black letter of the latter's work, so as to set this embryo Dominion going throughout its several parts, in the development of all that is within it of the elements of vitality. The Pacific Railway may be used for the realisation of that popular expectation if it be carried out with breadth and courage. It can certainly be so located as to make New Brunswick and Nova Scotia the factors and carriers; Quebec and Ontario the bankers and manufacturers, of the millions of agriculturists who may be planted on the rich lands of the North-West, to supply to these scattered Provinces, as the millions of agriculturists who have been planted on the rich lands of the Mississippi Valley have supplied to the scattered communities along the seaboard of the United States, a centripetal attraction of ample grasp to bind around a common core all the outlying parts of a great American empire.

The location of the Canadian Pacific has been made in disregard of its power to 'fasten life in' the Dominion. Delivering the business of the North-West so far in the interior as the neutral waters of Lake Superior, it gives that business over at the first opportunity on its transit, to foreign rivalry. It ignores, thus, the National Policy which would have taken pains to exclude, as far as possible, the intervention of the ample capital and dashing enterprise of the people of the United States between the carrying and the manufacturing interests of Ontario and Quebec, and a vast domestic market of supply and demand whose exclusive possession would give so much ground of permanence to our political union. Further: the location of the Pacific Railway has been made to rest on a system of eastern connections which give the winter commerce of the country to a port of the United States. If only because of its *political complexion*, that fact is highly objectionable even where it is unavoidable; but where it may be avoided with actual economy, it ought not to be submitted to by the country. Now the location of what ought to be the national highway, not only gives the commerce of our future to Portland for the time, but that highway being the arterial outlet of the transportation of the future, the giving *now* establishes that subordination of Canadian independence for ever. It suppresses thus, and as the pamphlet, 'Notes on the Canadian Pacific Railway,' shows, does so in wantonness, a vast development of reciprocal interests available in the hands of statesmanship for bringing into play the powerful attraction which may be set into operation, with the effect of binding together around the North-Western core, the inland and the outlying Provinces of what is little other than a union of black-letter.

Since its inception, the Pacific Railway has been treated by the Government of Ottawa in a narrow spirit. The pamphlet, 'Notes on the Pacific Railway,' says:

'One Ministry felt free to yield to local pressure in restricting the route of the road through the Province of Ontario to the south of Lake Nipissing. . . . Again, the road, designed though it is to connect the two oceans and to discharge 'Asiatic commerce' on the St. Lawrence, has been made to 'begin in the woods!' Its ultimate connection with tide-water was, it is true, provided for at the same time by an 'Order in Council,' one declaring that connection to lie over two sides of a triangle whose base is perfectly available for making the connection in about half the mileage of the sides! The general purpose of the

railway was compromised for some local consideration in order to build a branch whose only supposable uses had been already discharged elsewhere ; and was again compromised when the influence of local interests was allowed to determine the site of a river-crossing !

'Some struggling settlements exist on the northern border of Georgian Bay. Others battle on to crops on the northern shore of Lake Superior. These insignificant facts have been, seemingly, allowed to fix one part of this great line of inter-oceanic commerce ! A few dozen of town-lot speculators had cast their fortunes at a port of Lake Superior ; and made good their determination to control the route of this vast undertaking in order to give value, by a short branch, to their 'landing !'

'Forty or fifty thousand people in Manitoba constitute an influence which has been permitted to determine a vital point—the general question of route—in the design of a great project whose capabilities go to the creation of an empire ! Ten thousand inhabitants in the southern part of Vancouver Island and the southern mainland of British Columbia, represent another consideration dominating the grand practicabilities of that creative enterprise—committing it to an extravagant project of marine ferriage, or placing its existence as an agency of British commeree, subject to the foreign guns of San Juan. All this dragging-down of the Pacific Railway below its proper level being, it may be feared, unavoidable so long as its execution is left in Colonial hands, the intervention of the Imperial Authorities in that execution is a very necessity of things if it is to be held on the high ground of Imperial interests. . . .

'The surveyed line of the Canadian Pacific is open to objection on grounds which may be glanced at in the following summary :—

'That from the Valley of the Ottawa to Manitoba—about 900 miles—it traverses a country which contains but insignificent areas fit for cultivation, a country whose rocky and broken surfaces involve lines needlessly unfavourable and works needlessly heavy ;

'That it is exposed for 150 miles to seizure in the event of war, by parties from American ships dominating Lake Superior ; and that it is again exposed to seizure by troops penetrating from the boundary of the United States into Manitoba from two days' march to four, at any point of the track for a length of 400 miles ;

'That for 200 miles west of Selkirk it runs through a district in which facilities of settlement exist already, in the navigation of Lakes Winnipeg, Manitoba, and Winnipegosis ;

'That of the 800 miles between Winnipegosis and the mountains, 500 miles go through a region unsuited to agricultural settlement ;

'That the pass selected for the crossing the Rockies is twice as high as that of Peace River, and probably one-third higher than any* that is likely to be found *necessary* in crossing from Peace River by way of the central plateau into the slopes of the Pacific.'

The people of Canada must be supposed not to have intended that the Pacific Railway should be subordinated to local or sectional interests. They may be regarded as submitting to its burdens, not to please Manitoba, not to please British Columbia, not to give value to lots at Kamanistiquia or at Prince Arthur's Landing ; but to consolidate and to develop their political unity, and to place its maintenance under the safe-guard of *a great line of defence.* Scattered settlers extending in a thin front along the frontier of a great nation, and receiving at all points of 1,500 miles of that front the pressure of that nation's expanding population, the practical intelligence of the Canadian people sees that their control of their own political destiny demands that they shall have, not only a frontier, but also an interior ; not only a front, but also a rear. 'Notes on the Canadian Pacific Railway' suggests, for the National line, a route which promises to meet these necessities, and to give the political union of the country the fullest obtainable base in reciprocating interests. It says :—

'A *prima facie* case presenting itself

* This rests on speculation as to the continental summit of a route up the Omineca and, passing the Fraser-Skeena "divide," descending to the Pacific by the Sabine and Skeena.

thus in support of this conclusion, the Peace River Pass taken in conjunction with the extraordinary richness and adaptation to settlement of the Peace River country, seems to determine one point on the true route for the Canadian Pacific Railway.

'Portland cannot be accepted forever as the winter outlet of Canada. If dependence on a foreign power in that case is to be stopped at all, the stoppage must govern the location in reference to the Atlantic Ocean of the great arterial line of this nursling Empire. Halifax, or St. John, or both, offering an escape from holding the trans-continental commerce of Canada subject to the good pleasure of the United States, the summer port of the Canadian Pacific should be selected in reference to these harbours as its winter ports. At or near Quebec is the lowest point at which the St. Lawrence can be regarded bridgeable. About 40 miles farther than Montreal, on a straight line, from Peace River Pass, it is now nearer by railway than Montreal to Halifax by from 150 to 170 miles. Saving ultimately a railway transportation of over 90 miles to St. John, and over 330 miles to Halifax, the true point for discharge of the Pacific Railway upon summer-tide-water would seem, on these grounds, to be Quebec.

'If Quebec be accepted as a fixed point in the East, and the Peace River Pass as a fixed point in the West, a question arises as to the intermediate route. To follow the line now contemplated by way of Montreal, Nipissing, Selkirk, etc., would involve an unnecessary length of track, which would aggregate a total excess, between tide-water and tide-water, of probably not less than 240 miles. With even six trains each way per day, the working-expenses over that distance would cost a million of dollars per annum. It is needless to add to that reason, if Quebec be accepted as the summer port, other proof of the conclusion that the route which has been surveyed should not have been considered until a thorough investigation had been made of the direct route.

'The straight line between Quebec and Hudson's Hope cannot be followed otherwise than generally. Special considerations demand modification in that basis of experimental examinations. What these are can be determined but by those who are in possession of access to official reports and maps of the country to be traversed. A few may be suggested here, at a venture by way of illustration. The broken country back of Quebec demands, probably, that the route be thrown as soon as may be into the valley of the St. Maurice. Passing out of that into the rainshed of Hudson Bay—at a maximum elevation of, perhaps, 1,400 feet—it should be directed upon the Abbittibi and the Moose with a view to connection without any considerable increase in length of track, with navigation by ships or steamers from Hudson Bay. Proceeding, tapping on its way the Albany River, the Weemisk River, the Wastickwa River, etc., it would tap the navigation of Lake Winnipeg from the south, and of Nelson River from the north, at Jack River—crossing the latter at, say where it is said to be but 200 yards wide, Norway House.

'Continuing westwardly from Norway House, the deviations from the straight line suggested by great special considerations would take the railway to, suppose Big Bend, so as to tap the navigation of the Saskatchewan above the Grand Rapid. Proceeding into the valley of the River *Lac la Ronge*, it would go on to tap the Beaver River and the Athabasca; and tapping the Peace River near the mouth of the Smokey, might continue thence to Hudson's Hope as it entered Peace River Pass.

'The line sketched out here is sketched as but a basis of experimental work subject to modification, or, as facts may demand, rejection. It may prove, on investigation, to be unsuited totally. It involves some assumptions which do not rest on a sufficient breadth of information, and other assumptions that are little better as a ground for grave decision, than conjecture. But Peace River Pass being once accepted as a point on the route of the Canadian Pacific, and Quebec as its point of discharge upon summer-tide-water, the circuit by way of Lake Nippissing, Lake Superior, and Manitoba, involves so great an excess of length that it ought to be held inadmissible until all facts, physical and agricultural, shall have been first brought out in reference to the line from Quebec by way of Norway House.'

In giving local application to the line indicated thus on general considerations, the pamphlet says:

'What interest has *New Brunswick* in a railway discharging Canadian freights for Europe at Portland? Quebec made the terminus of the Pacific Railway on the St. Lawrence, about 290 miles of railway (7 miles shorter than the line connecting Montreal with Portland), would give the shipping interests of that Province the opportunity of competing for the winter freights of half a Continent, at St. John.

'What interest has *Nova Scotia* in a railway discharging Canadian freights for Europe at Portland? Quebec made the terminus of the Pacific Railway on summer-tide-water, a chord-line across the bow-line of the Intercolonial will spring into existence, reducing the distance to Halifax to 510 miles; and thus will the establishment of the terminus at Quebec give the shipping interests of Nova Scotia, subject to the drawback of transportation over 220 miles of railway, the great advantage of their geographical position in competition with St. John for the winter-freights of the British North American Empire of the future, at Halifax.'

The Canadian Pacific discharging at Quebec, direct lines would follow under the necessity of things from Quebec to St. John and to Halifax. A trunk involving no considerable addition to the length of rail to either port, would apply for about 170 miles out of Quebec—to a connection with the New Brunswick and Canada Railway at Houlton. Following the Houlton branch of that line to Debec junction, it would fork there, extending on the one hand, in about 160 miles, to Painsec junction on the Intercolonial; and on the other hand, in about 120 miles, to St. John. This would give Quebec one outlet on the Atlantic at the cost of transportation over 290 miles, to St. John; and another offering more favourable conditions in reference to European commerce, at the cost of transportation over 510 miles, to Halifax. But further advantages of the proposed change of location are pointed out in the pamphlet thus:

'Five or six hundred miles of railway running up the St. Maurice and down to the Moose, would tap Hudson Bay. That line once ready to discharge upon the St. Lawrence at Quebec the treasures awaiting to be claimed by enterprise on and around that great sea, it would quicken the latent energies of the French Canadian population by directing a powerful stream of industrial blood into its heart. The timber, the soil, the minerals, the fisheries—with their whales and their seals and their salmon and their caplin and their cod—thrown open by that line even to Hudson Bay, would fix the Canadian Pacific firmly in the local interests of Quebec and the Maritime Provinces, by placing new openings for industry and wealth at the service of their lumbermen, their farmers, their miners, their sailors, their ship-carpenters, their merchants, their capitalists.

'On neither the route adopted, nor on the route proposed in the following pages, does the Pacific Railway obtain a broad basis in the special interests of Ontario. While meeting that expediency, a further development of the Imperial and of the National character of the enterprise may be obtained in the case of the line proposed in this pamphlet by constructing from its crossing of the Moose, a branch-line of 350 miles up the Abittibbi and down the Montreal River to a junction with two lines converging on a point east of Lake Nipissing—one of these lines progressing now by way of Ottawa from Montreal, the other progressing now from Toronto. The point of junction of that Pacific Railway branch with these two lines from the south being retired some eighty miles inland from the Georgian Bay, and in a country highly defensible, this expedient would supply an interior line of communication in direct connection with a base upon Hudson Bay; and while giving about 700 miles of Railway to local development in Ontario, would give that Province at its great railway-centre, a terminus of the Canadian Pacific. Montreal would continue to enjoy the *present*—its canals, its lakes, its Grand Trunks—and being provided, like Toronto, with one terminus of the Pacific Railway, would be asked by the proposed change of route but to divide the *future*, in a highly expedient distribution of the industrial and commercial vitality of the country, with that centre of French Canadian life, 'the Ancient Capital.'

* * * * *

'The political policy which England has placed on trial in the creation of the Dominion of Canada involves a great British interest. In the fore-front of that policy lies the Canadian Pacific Railway. Based on Halifax, its summer-outlet at the fortress of Quebec—on the defensible waters of the St. Lawrence—and opening up communication from the rear with Europe by way of Hudson Bay, and perhaps by way of Mackenzie River, it supplies a line of transportation three hundred miles north of the frontier, for maintaining the defence of British interests on the great lakes and on the Northern Pacific. Giving to English commerce and enterprise the vast wealth of land and water within the basin of a great inland sea; grasping the fisheries of the Northern Ocean for a hardy population south of them; opening, probably, a direct route by way of that ocean between England and the boundless wheat-region drained by the Mackenzie; and planting British power in a position on the shores of the Pacific from which it can overshadow rivalry in the surrounding waters, the Canadian Pacific Railway stands in relation to Imperial policy in the creation of this Dominion, as an essential base of its development, the very spinal column of another North American Empire! The route suggested above places that great enterprise fairly within the objects of British statesmanship; and raising it out of the Colonial into the Imperial, makes it a legitimate subject for Imperial support.'

The mistake that has been made in the location of the Pacific Railway is vital. That a mistake *has* been made is a conclusion which, after seven years of 'explorations' in that part of British Columbia which has been described as a 'sea of mountains,' begins to take form in the public mind. And now that the world is about to conclude that it is cheaper to carry inter-oceanic freights over an elevation of 1800 feet than over an elevation of 3700, that a railway through the rich soils of the Peace is more likely to obtain freights and promote settlement than one through the northern limits of the great American desert, the said world settles down to the belief that the proper crossing of the Rocky Mountains is that of Peace River Pass! But it has no sooner sat down to consider that conclusion, than it has become startled by the declaration of the map that, of all parts of British Columbia, the part north of 'the sea of mountains,' the part offering the strongest presumptions, *prima facie*, of the best extension to tide-water of the Pacific, is 'unexplored!'

'Explorations' are in progress at last for testing the route by Peace River Pass. But they have been begun in adherence to the blunder of the present location through Manitoba; and promise, therefore, to prove, as all the previous explorations have proved in fact, to be a waste of time and money. A glance at the 'Report on the Canadian Pacific Railway by Sandford Fleming, C.M.G., Engineer-in-Chief, Ottawa, 1879,' shows strikingly that, including all the contributions to the subject by travellers, seven years of Pacific Railway explorations, at a cost of four millions, have left us with very little knowledge of the North-West. Even a breadth of tinting which the actual range of the information does not justify, fails to disturb the conclusion from the laborious studies embodied by Mr. Ridout on the map which accompanies Mr. Fleming's last report, that we know to-day but little of the North-West—know nothing of it in the way proper for presenting to men of sense so grave a proposition as the construction of the Pacific Railway in consideration of a grant of lands along the line.

'Notes on the Canadian Pacific Railway' advises that the present system of explorations be stopped. It is certainly high time to consider the advice when that system can be studied under the light of the fact that it has nothing to show—certainly nothing of any value—to the country for so vast an expenditure as four millions. The 'Notes' says:

'The general considerations which suggest the route by Norway House bring in question the antecedent proceedings. That four millions of dollars—nearly $2,000 per mile of railway—have been expended on surveys which have steadily ignored what seems, on *prima facie* evidence, to be the true line until the contrary shall have been established, is a fact so grave as to set men thinking radically. But, is the mode of exploration pursued the best—the most economical, the broadest? Colonel Dennis, the Canadian Surveyor-General, may be supposed to have answered that question in his adoption of the survey-system under which the Government of the United States makes the work of exploration *subserve the uses of settlement.* It is proposed here that that system shall be extended to the region traversed by the route suggested above for the Pacific Railway, so that the moneys spent on the latter service in future shall accomplish a permanent result by establishing in the field, in the note-book, and on the map, a fixed guide for the sale and the settlement of the Crown Lands. If the four millions of dollars expended up to this time on Pacific Railway surveys where facts may—in all likelihood *will*—prove these expenditures to be mere waste of money, had been expended on section-line surveys after the American system adopted by Colonel Dennis in Manitoba, Canada would be in possession to-day of an immense breadth of accurate knowledge of the topographical and agricultural facts of her great North-West. And these surveys embodied in such a map as the Surveyor-General's map of Manitoba, the determination of the best route for the Pacific Railway could be made by running across the continent five or six thousand miles of experimental lines at a cost not exceeding a hundred and fifty thousand dollars.'*

Mr. Sandford Fleming seems to feel the insufficiency of the present mode of 'exploration.' He says in the Report under consideration in this article:

'I have endeavoured to collect all known information respecting the country within the limits of the Prairie Region. To make it easy of reference, the whole region has been subdivided into blocks, bounded by each separate parallel of latitude and longitude. I have placed side by side the descriptions of scientific travellers, and all statements made on reliable authority which are available. Thus all facts collected have been systematically arranged, and the result is set forth in the appendix. A map has also been prepared on which an attempt has been made to indicate generally the character of the soil, separating that of more or less value from tracts which are comparatively worthless.

'It will be seen that much yet remains to be discovered respecting large areas, and it is this information which I suggest should be obtained in the coming season by careful explorations of the sections where our knowledge is deficient. This *or some other similar method of systematically arranging the facts* as they are collected, can alone give moderately correct ideas of a country so vast in its dimensions. Some misconception, I fear, has already arisen respecting the character of portions of the Territory. Large tracts have been declared worthless on very slender data, and equally extensive areas have been pronounced to be of the greatest fertility on insufficient grounds.

'The course I suggest will dispel all erroneous opinions. Moreover, correct information is indispensable to enable us to mature a scheme of colonization railways for the ultimate development of every considerable tract of cultivable and habitable land.'

This reference of Mr. Fleming to the necessity of more 'explorations' glances outside his own system. It speaks of '*some other* or similar method of systematically arranging the facts as they are collected,' so as to 'give a *moderately* correct idea of a country so vast in its dimensions.' The 'Notes' points out clearly what that 'some other' method ought to be—what it should have been at the outset; and what it must be ultimately if the Pacific Railway is to be located knowingly, or the lands along its route to be offered as a basis for its construc-

* This assumes, under the light of extensive practical experience, a rate for these engineering surveys of from $25 to $30 per mile. The Pacific Railway lines have, it is true, cost $64 per mile; but lines much more elaborate than they—those of Col. Dennis's 'block'-surveys in Manitoba and the North-West—have cost much less—$37 per mile. What are called 'Standard' lines of the section-surveys of the United States are run out at a cost varying from $10 to $16 per mile.

tion in a way likely to be considered seriously by men of business. Speaking after the fact of seven years of 'exploration,' and in full view of their results, it says :—

'A mistake has been made in the mode of exploration. An investment of fifty or a hundred millions ought not to be predicated on anything short of full knowledge. The present system of investigation may stumble on a good line ; but it fails to supply evidence that there may not be found even ten miles on either side of that line, one better by many millions of dollars. The exploration ought to proceed on a plan of breadth, one serving to show not only a good line, but *the best* line. Besides this reason for stopping at once the present mode of proceedings, there exists the further reason that, while that mode *wastes*—and has carried the waste already to millions—all outlays, save those on the line ultimately adopted, the method proposed in the following pages applies almost all its outlays to a work of permanence which is a very necessity of settlement. With such a map as Colonel Dennis's map of Manitoba, I can affirm on the authority of many years of personal experience in the determination of railway-routes through regions new and thinly settled, that the question of the route across the Continent may, in the first place, be simplified in the office by the projection of several lines on the map on a basis of specific knowledge. A personal examination of half a dozen points — known to Engineers in the United States as 'ruling points'—on the lines laid down thus, will be sufficient for the rejection of the more unpromising of those projected routes. The few whose relative merits cannot be determined by this reconnoisance may then be subjected to instrumentation. That experimental survey may be made in the case of the Canada Pacific at a special cost which ought not to exceed $150,000—a cost sufficient in conjunction with the permanent work of the settlement-surveys, to determine not only a good route, but a route based on such a fulness of knowledge that it may be pronounced with confidence to be the *best* route.

'Another reason why the system of single line-explorations should be abandoned for that of section-line surveys, rests on that necessity of the Pacific Railway, the utilisation of its rich lands as a convertible resource. The last report of the Chief Engineer of the railway presents strikingly the utter poverty of the information which has been collected, so far, as to the character of those lands. Half-a-dozen professors of Botany might spend the natural terms of their lives in flying visits along Indian trails in the North-West without supplying knowledge of the soils of that region in the way necessary for its presentation to investors in the regular course of business. The section-line survey supplies information in a very different way. Used as they are now in every land-office of the United States as a basis of its sales, and used as they have been in the land of the Illinois Central Railway as a basis of its sales and of its credits, books of maps and field-notes compiled from section-line-surveys are very necessities for the utilisation of the magnificent lands of the North-West as a means of obtaining money for the Pacific Railway.'

The 'Notes' add :—

'It is proposed here that "explorations," whether topographical or botanical, on special routes for the Canada Pacific, shall be stopped. Instrumentation, whether on trial or on location, involves, when made in advance of general knowledge of the country, a still more costly waste. "Section"-line-surveys—at intervals of a mile apart—are hardly necessary for guiding the determination of the proper route of the Pacific Railway ; for "Township"-line-surveys—at intervals of six miles apart—will probably be found sufficient. It is suggested, therefore, that these latter be run out, "blazed," noted, and mapped, along the proposed route from Quebec, by way of Norway House and Peace River Pass, to the Pacific. The breadth of the survey at the eastern end may be narrow, the east and west lines, or "base"-lines, being "offsetted" on meridians wherever necessary to conform to the general direction of the proposed route. Beyond the Rocky Mountains these surveys—in the region marked on the map as "unexplored"—would take a wide range, so as to embrace the lacustrine plateau between the Rockies and the Cascades for, say, three degrees of latitude. The "Township" lines having supplied the facts, agricultural and physical, somewhat gener-

ally, it might be found necessary subsequently, to fill the intervals at some places with "section"-lines so as to obtain these facts in specification. But, be the detail in which the work may be carried out whatever experience shall demand, every dollar spent on it would be spent on a result of permanence, on a very necessity which must be met sooner or later, as a basis of agricultural settlement.

'About 400 miles of the belt proposed above for settlement-survey lie within Quebec. The cost of that part of the whole would be chargeable in fairness to the Crown Lands Department of the Government of that Province. Ontario would, doubtless, meet the obligation of paying for the survey of her lands lying within the proposed belt, for a length of about 300 miles. The 600 miles remaining east of Norway House applying to lands of the Dominion, would constitute a legitimate charge upon the Dominion. If the Imperial Government accept the fact of its deep interest in this great British Railway, it will not hesitate to make the proposed surveys from Norway House to the Pacific, itself. A company of the Royal Engineers set at that work, its completion would place before the English people the offer of fifty millions of acres in a preciseness of knowledge as to the character of the land and as to the construction of the railway—in substitution for mere general statements as to the soil and to the topography—which is absolutely necessary to supply satisfactory grounds of consideration for an acceptance involving so grave a commitment.'

An expenditure of four millions of dollars having been made under the present system of explorations and surveys, the fact that that expenditure is chargeable on the face of its results with being a mere waste, demands that its continuance shall be stopped until, at all events, the merits of a substitute system shall have been considered. Passing now to the mode of construction, the attention of thoughtful men becomes startled when called on to consider that the country has entered on the construction of 2,700 or 2,800 miles of railway at a cost, on the sections now under work, of from $27,000 to $83,000 per mile; on the sections next to come under work—those in British Columbia—of from $59,000 to $84,000 per mile! Under this head of its subject, the 'Notes' says:

'The Canadian Pacific Railway should not cost at first a dollar more than necessary to make it passable by trains. Interest kept down thus, the opening should take place as soon as possible so as to begin the process of developing business. Running through a country perfectly new, it will not require at the outset the class of works proper to great traffic. The bridge-piers are, in truth, the only constructions that demand permanence. Its road-bed high, well-drained and well cross-tied, it can dispense as long as necessary with ballast, fences, cattle-guards, road-crossings. Except at such places as the intersection of rivers, station-buildings will not be necessary. A colonization road whose object at first is that of simply opening up the country for settlement, it may resort freely to undulating grades, sharp curves, wooden bridges, and almost unbroken stretches of single-track-embankment. Rock-work, deep cuts, high embankments, etc., being all avoided by, where unavoidable otherwise, substitutions of one sort or another, the road and rolling-stock ought not to cost for the purpose of opening for traffic between Quebec and Peace River Pass, more than $15,000 or $16,000 per mile. Any subsequent addition of ballast, substitution of trestling by filling, replacement of undulating gradients by heavy work, etc., etc., may be made in employment of idle rolling-stock—made by degrees at the charge of revenue and in the continued production of revenue, by a system of labour associated with the encouragement of settlement.'

It says on the same head, this:—

'The mode of construction adopted for the Canadian Pacific demands reconsideration. I do not remember to have seen any estimate of its cost on the Prairies; but recollect that the figures for British Columbia are set at about $75,000 a mile. Between Lake Superior and Manitoba they go up to about $83,000 a mile! Such sums as these represent for a railway through a wilderness, are open to grave question—going as they do to the practicability of construct-

ing the line without danger to the credit of the country. If the $20,000,000 being invested in the railway between Lake Superior and Manitoba had been applied to the railway—the colonization line at a cost of about $15,000 a mile—proposed in the following pages, it would have connected Quebec with Hudson Bay ; and have carried the railway seven hundred miles farther westward—completely through "the woodland region" to the threshold of the western granary, at Norway House. There that expenditure would, in any event, have flung open the gate of the future greatness of the country ; and would have brought the project to a stage at which, there is very little room for doubt, the offer of a land-grant of fifty millions of acres made in the business-like way of presentation under the specifications of section-line surveys, would enlist British capital in the extension of the line to the Pacific. A contrast of the results that *might have been* accomplished thus for the same amount of money, with the results that *will have been* accomplished in the case of the expenditures between Lake Superior and Manitoba, supplies not only a striking commentary on the route adopted, but also a startling comparison of the cost of the mode of construction with the expediencies of the case.*

The 'Notes' urge that this great enterprise be entered on *de novo ;* and that the commitments to the present blunder be boldly disregarded, so as to carry out the road on the high ground of Imperial and National interests. It says :

'Yellow Head Pass should, it seems to me, never have been thought of as a point on the Pacific Railway while a pass half the height offers at the discharge through the Rocky Mountains, of Peace River. In this and other points glanced at in the following pages I cannot avoid setting down the present location of the National Railway as an error. The plea set up in apology for that mistake, that the Canadian North-West will be crossed hereafter by several lines to the Pacific, supplies, assuredly, no reason why the *first* should be fixed on the route which is the most objectionable. Nor is the investment of twenty millions in the blunder which evidently has been made, a good reason why a hundred millions more should be invested in continuation of that blunder. Indeed that commitment ought not to count for anything against the overruling expediency of placing the Railway on an Imperial and National plane—certainly ought not to count so when it is considered that those twenty millions supply a distinct want of the day, in giving access for even six months of the year to the lines of emigrant distribution centering at Winnipeg in the navigation of Red River, of the Assinaboine River, of Lake Manitoba, of Lake Winnipegosis, of Lake Winnipeg, of the River Saskatchawan.'

The 'Notes' deals with its subject without any consideration for parties. It goes forward as in a great practical business ; and in the firm belief that the country will suffer very much more by the course marked out for the location and construction of the Canadian Pacific than if the leaders of both its political parties and all the interests they represent were sunk to the bottom of the sea. It offers the following apology :

'I went into studies of the Pacific Railway to employ idle hours. The results are given to the public in obedience to an old Engineer's sympathy with a great Engineering enterprise. And views of a pertinent experience presented independently of the political authority may, perhaps, prove to be of more or less service to the country. It may be well to add that in dealing with the question I have not intended to reflect on either individuals or governments. Indeed, I had been restrained for a long time in giving my views on the subject to the public by the unavoidable seeming of discourtesy to the engineer in charge of the railway. But the extent to which I have seen what I must suppose to be mistakes of the management carried, has led me to reflect that that seeming is not real. The points involved are seldom or never strictly professional ;

* At the rate on the route between Lake Superior and Manitoba, the construction eastwardly in extension of that route to the valley of the Ottawa, would cost as much as the construction, on the basis proposed in the 'Notes,' of the line from Quebec by Hudson Bay, Norway House, and Peace River Pass, to the gold fields of the Omineca !

and where they are strictly professional, they may be presumed to find their explanation in *political pressure*. In specifying acts of Governments, I have had no thought of discrimination between the Government of Sir John Macdonald and that of the Hon. Mr. Mackenzie. Both Cabinets are responsible for errors in the management of this great practical enterprise ; and because of, simply, the conditions of their existence.'

And now that great, that ruinous, blunders have been committed in the case of the Pacific Railway, there is hope for its future in the consideration that these blunders are chargeable fairly to both parties. Where both are not responsible in common, the aggregate responsibility in the case of either is about evenly balanced by the aggregate responsibility of the other. There is, therefore, no reason why the corrective shall not be applied patriotically and boldly with the approval of both. On the contrary, the responsibility of each for the mistakes already committed, places on each the obligation of earnest concurrence in the conclusion that the location* and construction of the Pacific Railway—being properly outside the functions, as they are certainly outside the intelligence, of Ministries—ought to be placed in the hands of a commission of specialists removed beyond the embarrassments of factious carping. If the voice of party would but remain silent in the event of a transfer of the work to a non-political body occupying the proper relation to the ministry of the day, no happier selection for the management could be made than the Deputy Minister of the Interior, the Deputy Minister of Railways, and the Deputy Minister of Immigration.

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* The section-line surveys proposed in the text can be confined to routes of promise. Each would require two lines of parallel—one as a base line and the other as a check. To conform generally to their route, these parallels should be offsetted, at intervals, on meridians. All that would remain to be done then, would be the running out of meridian-lines of such lengths, and at such distances apart, as would be necessary to shew the route for a sufficient width, *in cross-section*. This work could be made available subsequently, by filling in, for the purposes of settlement ; but the lines suggested would be sufficient for railway exploration ; and could be carried out to any extent likely to be required for that purpose in, at most, three years.